

REMARKS

Reconsideration of this application as amended is respectfully requested. Claims 1, 3-8 and 18-20 have been amended. No new matter has been added. Claims 1-50 remain pending. The remarks below in connection with the claim rejections refer to the claims as amended herein.

Claim Rejections 35 U.S.C. § 112

Claims 18, 20 and 26 have been rejected under 35 U.S.C. § 112, first paragraph, for “mak[ing] mention of a priority storage array or CAM disposition; neither of which has been located in the specification by the examiner.” (Office Action, page 2)

Claims 18, 20 and 26 have also been rejected under 35 U.S.C. § 112, second paragraph, along with claim 27, as being indefinite for including the expressions “priority storage array” (claims 18 and 20) and “disposition of the CAM device” (claims 26 and 27¹).

Applicant has amended claims 18, 19 and 20 to refer to a priority number storage circuit (described, for example, in paragraph [0035] of the specification) instead of a priority storage array and respectfully requests that the rejections under section 112, first and second paragraphs, be withdrawn.

With regard to claim 26, paragraph [0040] of the specification describes, for example, that “the configuration circuit is programmed with a control value that is provided to the cascade logic 403 to specify (directly or indirectly), the tier in which the CAM device 400 is disposed within a hierarchical CAM system” and further that the programming operation may be “a run-time programming operation (e.g., performed in response to an initialization instruction and associated configuration information received during system startup).” Applicant has amended claim 26 to correct a typographical error, but otherwise submits that, in view of the foregoing, claim 26 is described in the specification in a manner that complies fully with the written description requirement. Accordingly, applicant respectfully requests that the rejections of claim 26 under section 112, first and second paragraphs, be withdrawn.

¹ Although not specifically stated, applicant understands claim 27 is also to be rejected under section 112, second paragraph for including the expression “disposition of the CAM device”

Claim Rejections - 35 U.S.C. § 102

Claims 21, 22, 25 and 28 have been rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,521,994 to Huse et al. (“Huse”). Applicant respectfully disagrees with this reason for rejection.

Claim 21 recites in part:

a cascade logic circuit coupled to the CAM core to receive the local priority number and having an input to receive at least one remote priority number from another CAM device, the cascade logic circuit being configured to compare the local priority number and the at least one remote priority number at one of a plurality of different times according to a control value.

Huse discloses a multi-chip module comprising a content addressable memory (CAM) system wherein multiple CAM devices may be configured to operate in a depth cascade configuration (Huse, col. 8 lines 21-30). Each CAM in the system further comprises a priority address input which is *hardwired to a particular logic state*, and is used to assign priority between the CAM devices (Huse, col. 8 lines 38-40, col. 9, lines 51-53). Huse does not disclose or suggest a cascade logic circuit having an input to receive at least one remote priority number *from another CAM device*, as recited in claim 21.

Moreover, even assuming *arguendo* that the value provided at the priority address input of Huse constitutes a priority number, Huse discloses merely that the priority address input (stored in a status register 407 as an address bit) is concatenated with a device ID (DID) or highest-priority-match (HPM) index to form a device index (Huse, col. 11, lines 51-59). Huse does not disclose or suggest a cascade logic circuit to “compare the local priority number and the at least one remote priority number” as recited in claim 21, and thus Huse also does not disclose or suggest (nor is any such disclosure pointed out in the Office Action) comparing the local and remote priority numbers “at one of a plurality of different times according to a control value.”

Because Huse lacks at least the above-recited limitations of claim 21, Huse does not anticipate claim 21 nor dependent claims 22, 25 and 28.

Claim Rejections - 35 U.S.C. § 103

Claims 1, 3-5, 9, 10, 13, 14, 23, 25, 35, 36, 40, 46, 47, 49, and 50 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,539,455 to Khanna et al. (“Khanna”) and further in view of U.S. Patent No. 5,467,349 to Huey et al. (“Huey”) and Huse. Applicant respectfully submits that claims 1, 3-5, 9, 10, 13, 14, 23, 25, 35, 36, 40, 46, 47, 49, and 50 are not unpatentable over Khanna in view of Huey and Huse.

Claim 1 recites, in part:

a first CAM device having a priority number output, a first enable input, a CAM core to output a local match address, and a cascade logic circuit to output the local match address from the first CAM device in response to assertion of a first enable signal at the first enable input

Khanna discloses comparing encoded prefix values both up and down through a series of depth cascaded CAM devices (Khanna, col. 22 lines 64-67) in a manner similar to the up/down rippling approach described in paragraphs 6-8 of the Background section of the present application. More specifically, Khanna discloses that a CAM in the cascade asserts a cascade down output /CDO to indicate that an encoded longest prefix is valid on its prefix down output PFXDO and asserts a cascade up output /CUO to indicate that an encoded longest prefix is valid on its prefix up output PFXUO (Khanna, col. 23, lines 19-60). Thus, even assuming *arguendo* that the cascade up or cascade down outputs of Khanna constitute enable signals, Khanna still does not disclose or suggest that a CAM device outputs a match address *in response to assertion* of either of the /CUO or /CDO signals, but rather that the /CUO and /CDO signals indicate validity of encoded prefix values passed between CAM devices. In view of this clear distinction, applicant submits that Khanna does not disclose or suggest the above-recited limitation of claim 1.

Applicant submits that Huey and Huse also do not disclose the above-recited limitation of claim 1 and thus that, even if Khanna, Huey, and Huse could be combined in the manner proposed in the Office Action, the combination would still lack at least the above-recited limitation of claim 1 and therefore would not have rendered claim 1, nor

dependent claims 3-5, obvious.

Claim 9 recites, in part:

a third CAM device coupled to receive the winning priority value from the second CAM device and configured to output a first enable signal to the second CAM device if the winning priority value has a higher priority than a third priority value.

Khanna discloses that cascade up/down outputs are asserted by each CAM regardless of whether the longest prefix was determined for a match address within the CAM or received from a previous CAM (Khanna col. 23, lines 31-28 and 54-60). Thus, Khanna does not disclose or suggest a third CAM device “configured to output a first enable signal to the second CAM device *if the winning priority value has a higher priority than a third priority value*” as in the above-recited limitation of claim 9. Applicant submits that this is a clear distinction between claim 9 and Khanna and further that Huey and Huse also do not disclose the above-recited limitation. Accordingly, even if Khanna, Huey, and Huse could be combined in the manner proposed in the Office Action, the combination would still lack at least the above-recited limitation and therefore would not have rendered claim 9, nor dependent claims 10, 13, and 14, obvious.

Claims 23 and 25 depend from claim 21 and therefore include the following limitation:

a cascade logic circuit coupled to the CAM core to receive the local priority number and having an input to receive at least one remote priority number from another CAM device, the cascade logic circuit being configured to compare the local priority number and the at least one remote priority number at one of a plurality of different times according to a control value.

As discussed above in reference to claim 21, Huse does not disclose the above-recited limitation, and applicant submits that neither Khanna nor Huey disclose the above-recited limitation. Accordingly, even if Khanna, Huey, and Huse could be combined in the manner proposed in the Office Action, the combination would still lack

at least the above-recited limitation and therefore would not have rendered claim 23 or claim 25 obvious.

Claim 35 recites, in part:

outputting an enable signal to the second CAM device if the remote priority value has a higher priority than the local priority value;

Applicant submits that, at least for the reasons given with respect to claim 9, even if Khanna, Huey, and Huse could be combined in the manner proposed in the Office Action, the combination would still lack at least the above-recited limitation and therefore would not have rendered claim 35, nor dependent claim 36, obvious.

Claim 40 recites, in part:

comparing a third priority value with the highest priority one of the first and second priority values within a third CAM device and, if the highest priority one of the first and second priority values has a higher priority than a third priority value, outputting a first enable signal from the third CAM device to the second CAM device.

Applicant submits that, at least for the reasons given with respect to claim 9, even if Khanna, Huey, and Huse could be combined in the manner proposed in the Office Action, the combination would still lack at least the above-recited limitation and therefore would not have rendered claim 40, nor dependent claims 46, 47 and 49, obvious.

Claim 50 recites, in part:

means for outputting an enable signal to the first other CAM device if the remote priority value has a higher priority than the local priority value;

Applicant submits that, at least for the reasons given with respect to claim 9, even if Khanna, Huey, and Huse could be combined in the manner proposed in the Office Action, the combination would still lack at least the above-recited limitation and

therefore would not have rendered claim 50 obvious.

Claim 24 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Khanna, Huey, Huse, and further in view of U.S. Patent No. 6,324,087 to Pereira et al. (“Pereira”).

Claim 24 depends from claim 21 and therefore includes the following limitation:

a cascade logic circuit coupled to the CAM core to receive the local priority number and having an input to receive at least one remote priority number from another CAM device, the cascade logic circuit being configured to compare the local priority number and the at least one remote priority number at one of a plurality of different times according to a control value.

As discussed above in reference to claim 21, neither Khanna, Huey, nor Huse discloses the above-recited limitation, and applicant submits that Pereira also does not disclose the above-recited limitation. Accordingly, even if Khanna, Huey, Huse, and Pereira could be combined in the manner proposed in the Office Action, the combination would still lack at least the above-recited limitation of claim 21 and therefore would not have rendered claim 24 obvious.

Allowable Subject Matter

Claims 30-34 have been allowed.

Claims 6-8, 11, 12, 15-17, 19, 29, 37-39, 41-45 and 48 have been objected to as dependent upon a rejected base claim, but indicated to be allowable if rewritten in independent form to include all the limitations of their respective base claims and any intervening claims. In view of the foregoing remarks, applicant respectfully requests to rewrite such claims at this time.

Status of Claim 2 Uncertain

Applicant notes that claim 2 is indicated to be rejected in the Office Action Summary, but is not indicated to be rejected or otherwise addressed in the “Detailed Action” portion of the Office Action (pp. 2-10). Clarification is respectfully requested.

In Conclusion

Applicant respectfully submits that all pending claims are in condition for allowance. If a telephone interview would be helpful in any way, the examiner is invited to call the undersigned attorney.


If an extension of time is due in connection herewith, applicant hereby petitions for such extension of time.

Authorization is hereby given to charge deposit account 501914 for any fee due in connection herewith, including any fee due for extension of time.

Respectfully submitted,

SHEMWELL MAHAMEDI LLP

Date December 26, 2006

A handwritten signature in cursive script, appearing to read 'Charles E. Shemwell', written over a horizontal line.

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